Remarks

Claim 1 has been amended to incorporate the features of claim 6. Additional support for the amendments to claim 1 is found at least at page 2, lines 14-18; page 3, lines 8-10; page 4, lines 13-16; and page 8, lines 15-28. Claims 4 and 5 have been canceled without prejudice. Additionally, claim 6 has been canceled without prejudice, the subject matter therein being incorporated into claim 1. Claims 1-3 and 7-12 have been amended for various grammatical reasons. No question of new matter arises and entry of the above-requested amendments is respectfully requested.

Claims 1-3 and 7-12 are before the Examiner for consideration.

Rejection Under 35 U.S.C. §102(b)

Claims 1-3 and 6-8 have been rejected under 35 U.S.C. §102(b) as being anticipated by U.S. Patent No. 5,186,999 to Brambach ("Brambach"). In particular, it is asserted that Brambach teaches a process for manufacturing a molded part where the molded part is obtained by molding at least one composite sandwich. It is also asserted that the composite sandwich incorporates an expansion agent that reacts during molding.

Applicant's Response

Initially, Applicant submits that claim 6 has been canceled without prejudice, thereby rendering the rejection of claim 6 moot.

In response to the rejection of the remaining claims, Applicant respectfully directs the Examiner's attention to the amendments made to claim 1 and submits that claim 1, as amended, defines a process for manufacturing a molded composite part that is not taught (or suggested) by Brambach. Applicant respectfully submits that there is no teaching (or suggestion) within Brambach of molding at least one composite sandwich material that includes at least one manufactured core adhered to at least one composite skin into a molded composite part in a mold with the application of heat and pressure as claimed in claim 1. Brambach teaches the formation of a sheet-like sandwich material formed of a core material sandwiched between two reinforced top layers. (*See e.g.*, column 1, lines 58-61). A local reinforcement may be injected under pressure through one of the top layers into the core layer. (*See, e.g.*, column 2, lines 14-21). Brambach teaches various methods for injecting the reinforcement into the core (*see, e.g.*, column 4, lines 38-64), but does not teach (or suggest)

any method for molding the sandwich material to form a molded composite part as required in claim 1.

In the outstanding Office Action, it is asserted that Brambach teaches "an injection molding process in which the core is directly injected in an injection molding machine in a mold described as a back support to control the positioning of the material in order to bond the core to all the layers". (*See* page 2, paragraph 3 and page 4, paragraph 10 of the Office Action dated July 24, 2009). Assuming, *arguendo*, that this disclosure is considered to be a molding process as asserted by the Examiner, it does not describe molding the sandwich material into a molded composite article. Rather, Applicant submits that this disclosure in Brambach (and cited by the Examiner) [1] merely describes injecting a plastic reinforcement material into the core. (*See* column 4, line 63 and column 5, lines 2-3). For example, Brambach teaches removing the nozzle from an injection molding machine and injecting a metered dose of a molten thermoplastic resin. (*See, e.g.*, column 4, lines 40-43 and the Example in column 6). The end product of the method of Brambach is a sandwich material having local, plastic reinforcement(s) therein. (*See, e.g.*, column 1, lines 5-8; column 6, lines 5-19 (Example); and claim 1). As taught by Brambach, the plastic support that is injected into the core material hardens after injection to provide for a local reinforcement to enable auxiliary means to be secured. (*See, e.g.*, column 1, lines 46-49 and column 2, lines 14-27).

It is respectfully submitted that the sandwich structure of Brambach is <u>not</u> molded with heat and pressure into a composite article in a mold as is required by claim 1. Indeed, Brambach is silent with respect to any teaching (or suggestion) of molding a sandwich material into a molded composite, especially molding a sandwich material with heat and pressure as claimed in claim 1.

Regarding the Examiner's assertion that the back support is a mold, Applicant respectfully disagrees.[2] The back support described by Brambach is present simply to prevent the plastic material from being forced through the sandwich structure when high pressures are used to insert the plastic reinforcing material into the core. (*See* column 5, lines 10-14). The support provides no molding function whatsoever.

It is further asserted in the outstanding Office Action that Brambach teaches a process for forming a sheet-like material (column 1, line 12) that is obtained by molding at least one

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[1] *See* paragraph 3 of the Office Action dated July 24, 2009.
[2] *Id.*

composite sandwich (column 1, lines 58-53). (*See* paragraph 4 of the Office Action dated July 24, 2009). It is respectfully submitted that at column 1, line 12, Brambach teaches that one example of a sheet-like material is a sandwich structure. Further, the teaching at column 1, lines 58-63 simply states one object of the invention, namely, to provide a sheet-like material provided with a local reinforcement. There is simply no teaching (or suggestion) in these cited passages, or anywhere else within Brambach, of molding a composite sandwich material in a mold with the application of heat and pressure to form a molded composite part as claimed in claim 1. As is clearly taught by Brambach, the invention relates to a sheet-like sandwich material with a local reinforcement and to a method of providing a local reinforcement in a sheet-like material, such as a sandwich structure. (*See* column 1, lines 5-11). There is simply no teaching (or suggestion) of a molded composite part made by molding a sandwich structure in a mold with the application of heat and pressure anywhere within the four corners of Brambach.

Additionally, Applicant respectfully submits that Brambach does not teach (or suggest) an expanding agent that reacts during molding, particularly an expanding agent that presses the composite skin against a wall of the mold as claimed in claim 1. It is asserted that the claimed expansion agent is disclosed at column 3, lines 36-39. (*See* paragraph 11 of the Office Action dated July 24, 2009). Applicant respectfully disagrees.

This passage cited by the Examiner teaches the *in situ* formation (generation) of a foamed core material within the sandwich structure. The "expandable material" recited in line 38 of column 3 of Brambach is merely the material that expands to form the foamed core. It is <u>not</u> an expandable material located in the sandwich structure that reacts in a mold to press the composite skin against a wall of the mold. In the presently claimed invention, the expandable material reacts <u>in</u> the mold to push the skin of the sandwich structure against the walls of the mold. (*See, e.g.*, page 8, lines 28-33 of the specification and claim 1 as amended). Thus, the expandable material in the sandwich structure of the instant invention <u>reacts during molding</u>. The asserted "expandable material" in Brambach is expended <u>prior</u> to any possible molding of the sandwich material as the "expandable material" is needed to form the foam core of the sandwich structure. Accordingly, Applicant submits that the "expandable material" of Brambach, as asserted by the Examiner is not, and cannot be, the same as the expandable material recited in claim 1.

As is well-established, in order for a reference to be anticipatory, each and every element of the claimed invention must be found within the four corners of the cited reference. Because Brambach does not teach (or suggest) a process for manufacturing a molded composite part that comprises molding at least one composite sandwich material that includes at least one manufactured core adhered to at least one composite skin into a molded composite part in a mold with the application of heat and pressure, where the sandwich material has incorporated therein at least one expansion agent that reacts during the molding step to press the composite skin against a wall of the mold as required by claim 1, Applicant submits that Brambach is not an anticipatory reference. Accordingly, Applicant submits that independent claim 1, and all claims dependent therefrom, are not anticipated by Brambach and respectfully requests reconsideration and withdrawal of this rejection.

Rejection Under 35 U.S.C. §102(b)

Claims 1-3 and 6-10 have been rejected under 35 U.S.C. §102(b) as being anticipated by U.S. Patent No. 5,174,934 to Saatchi, *et al.* ("Saatchi"). In particular, the Examiner asserts that Saatchi teaches a process for manufacturing a molded part where the molded part is obtained by molding at least one composite sandwich. It is also asserted that the sandwich incorporates an expansion agent in the core that reacts during molding. Additionally, the Examiner asserts that the composite sandwich is created in the mold and is then heated in order to foam the sandwich to form the desired article in the shape of the mold.

Applicant's Response

Initially, Applicant submits that claim 6 has been canceled without prejudice, thereby rendering the rejection of claim 6 moot.

In response to the rejection of the remaining claims, Applicant respectfully directs the Examiner's attention to the amendments made to claim 1 and submits that claim 1, as amended, defines a process for manufacturing a molded composite part that is not taught (or suggested) by Saatchi. Saatchi teaches placing a powder-like admixture that includes a blowing agent into a cavity of a mold, applying pressure to the admixture to cause compaction thereof, and then providing sufficient heat and pressure to melt the thermoplastic and decompose the blowing agent. (*See, e.g.*, column 2, line 55 to column 3, line 4). In addition, an activator to promote the production of a gas may be included in the admixture. (*See, e.g.*, column 3, lines 46-47 and column 5, lines 48-49). Optional skins can be placed

adjacent to at least one interior mold surface prior to the application of pressure. (*See, e.g.*, column 3, lines 10-12 and column 6, lines 52-54). The skin(s) may be an impregnated or non-impregnated mat, braid, unidirectional, interlaced, or woven fabric. (*See, e.g.*, column 3, lines 12-14 and column 6, lines 54-57).

Applicant respectfully submits that there is no teaching (or suggestion) within Saatchi of a composite sandwich material that includes at least one manufactured core adhered to at least one composite skin as claimed in claim 1. In particular, it is submitted that Saatchi does not teach (or suggest) a process for forming a molded composite article that includes (1) providing at least one composite sandwich material including at least one manufactured core adhered to at least one composite skin and (2) molding the composite sandwich material into a molded composite part in a mold with the application of heat and pressure as required by claim 1. Saatchi specifically teaches placing an admixture that includes a high temperature thermoplastic and a blowing agent and optionally, one or more skin(s), into a mold to form a composite structure within the mold. (*See, e.g.*, the Abstract). There is simply no teaching (or suggestion) anywhere within Saatchi of providing a composite sandwich material that includes at least one manufactured core adhered to at least on composite skin. In Saatchi, the composite structure is formed *in situ*. (*See, e.g.*, column 2, lines 50-54).

In addition, it is respectfully submitted that Saatchi does not teach (or suggest) an expansion agent that reacts during the molding step to press the composite skin against a wall of the mold as claimed in claim 1. Saatchi discloses the optional use of an "activator" to promote the production of a gas. (*See, e.g.*, column 3, lines 46-47). However, Saatchi is silent with respect to any teaching (or suggestion) of the presence of an expansion agent that reacts during molding to push the composite skin against the wall of the mold. Applicant respectfully submits that the mere disclosure of an "activator" in the admixture of Saatchi does not teach (or suggest) that this "activator" will act to push the composite skin against the wall of the mold as is required in claim 1.

As discussed above, in order for a reference to be anticipatory, each and every element of the claimed invention must be found within the four corners of the cited reference. Because Saatchi does not teach (1) providing at least one composite sandwich material that includes at least one manufactured core adhered to at least one composite skin or (2) a sandwich material that includes an expansion agent that reacts during the molding step to press the composite skin against a wall of the mold as required by claim 1, Applicant submits

that Saatchi is not an anticipatory reference. Accordingly, Applicant submits that independent claim 1, and all claims dependent therefrom, are not anticipated by Saatchi and respectfully request that this rejection be reconsidered and withdrawn.

Rejection under 35 U.S.C. §103(a)

Claims 9 and 12 have been rejected under 35 U.S.C. §103(a) as being unpatentable over U.S. Patent No. 5,186,999 to Brambach ("Brambach") in view of U.S. Patent No. 6,692,681 to Lunde ("Lunde"). With respect to claim 9, the Examiner admits that Brambach fails to teach reacting the expansion agent by heating the expansion agent in a mold. In this regard, Lunde is cited for assertedly teaching reacting an expansion agent by heating the expansion agent in a mold. The Examiner concludes that it would have been obvious to one of skill in the art to use the heated mold of Lunde to expand the agent of Brambach for the benefit of controlling the expansion of the skin against the mold.

Regarding claim 12, the Examiner admits that Brambach does not teach or suggest the claimed range of the composite thickness. In this regard, Lunde is cited for assertedly teaching that the thickness of the skin is less than 10% of the thickness of the composite sandwich. The Examiner concludes that it would have been obvious to one of skill in the art to use the dimensions taught by Lunde in the method of Brambach for the benefit of controlling the reinforcement or rigidity of the product by adjusting the skin to the core size ratio.

Applicant's Response

In response to this rejection, Applicant respectfully directs the Examiner's attention to the amendments made to claim 1 and to the arguments presented above with respect to the rejection of claims 1-3 and 6-8 under 35 U.S.C. §102(b) over Brambach and submits that claim 1, as amended, defines a process for manufacturing a molded part that is not taught or suggested by Brambach and Lunde.

As discussed in detail above, Applicant submits that Brambach does not teach or suggest molding at least one composite sandwich material into a molded composite part in a mold with the application of heat and pressure, where the composite sandwich material includes at least one manufactured core and at least one composite skin adhered to the core, and where the sandwich material has incorporated therein at least one expansion agent that

reacts during the molding step to press the composite skin against a wall of the mold as claimed in claim 1.

Brambach teaches the formation of a sheet-like sandwich material formed of a core material sandwiched between two reinforced top layers. (*See e.g.*, column 1, lines 58-61). A local reinforcement may be injected under pressure through one of the top layers into the core layer. (*See, e.g.*, column 2, lines 14-21). Brambach teaches various methods for injecting the reinforcement into the core (*see, e.g.*, column 4, lines 38-64), but does not teach or even suggest any methods for molding a composite sandwich material in a mold with the application of heat and pressure to form a molded composite part as required in claim 1. Indeed, Brambach is silent with respect to any teaching or suggestion of molding a sandwich material into a molded composite part, especially molding a composite sandwich material in a mold with the application of heat and pressure.

As discussed previously, the Examiner asserts that Brambach teaches "an injection molding process in which the core is directly injected in an injection molding machine in a mold described as a back support to control the positioning of the material in order to bond the core to all the layers". (*See* page 2, paragraph 3 and page 4, paragraph 10 of the Office Action dated July 24, 2009). Assuming, *arguendo*, that this disclosure is considered to be a molding process as asserted by the Examiner, it still does not describe molding the sandwich material in a mold into a molded composite article with the application of heat and pressure. It is respectfully submitted that Brambach merely teaches injecting the plastic reinforcement material into the core. For example, Brambach teaches removing the nozzle from an injection molding machine and injecting a metered dose of a molten thermoplastic resin. (*See, e.g.*, column 4, lines 40-43 and the Example in column 6). The end product of the method of Brambach is a sandwich material having local, plastic reinforcement(s) therein. (*See, e.g.*, column 1, lines 5-8; column 6, lines 5-19 (Example); and claim 1). As taught by Brambach, the plastic support that is injected into the core material hardens after injection to provide for a local reinforcement to enable auxiliary means to be secured. (*See, e.g.*, column 1, lines 46-49 and column 2, lines 14-27).

It is respectfully submitted that the structure of Brambach is <u>not</u> molded with heat and pressure into a molded composite article in a mold as is required by claim 1. Indeed, Brambach is silent with respect to any teaching or suggestion of molding a sandwich material

into a molded composite, especially molding a composite sandwich material in a mold with heat and pressure as claimed in claim 1.

Regarding the Examiner's assertion that the back support is a mold, Applicant respectfully disagrees.[3] The back support described by Brambach is merely to prevent the plastic material from being forced through the sheet when high pressures are used to insert the plastic reinforcing material. (*See* column 5, lines 10-14). The support provides no molding function whatsoever.

It is further asserted in the outstanding Office Action that Brambach teaches a process for forming a sheet-like material (column 1, line 12) that is obtained by molding at least one composite sandwich (column 1, lines 58-53). (*See* paragraph 4 of the Office Action dated July 24, 2009). It is respectfully submitted that at column 1, line 12, Brambach teaches that one example of a sheet-like material is a sandwich structure. Further, the teaching at column 1, lines 58-63 simply states one object of the invention, namely, to provide a sheet-like material provided with a local reinforcement. There is simply no teaching or suggestion in these cited passages, or anywhere else within Brambach, of molding a composite sandwich material in a mold with the application of heat and pressure to form a molded composite part as claimed in claim 1. As is clearly taught by Brambach, the invention relates to a sheet-like sandwich material with a local reinforcement and to a method of providing a local reinforcement in a sheet-like material, such as a sandwich structure. (*See* column 1, lines 5-11). There is simply no teaching or suggestion of a molded composite part made by molding a composite sandwich structure in a mold with the application of heat and pressure anywhere within the four corners of Brambach.

Additionally, Applicant respectfully submits that Brambach does not teach or suggest an expanding agent that reacts during the molding step, particularly an expanding agent that presses the composite skin against a wall of the mold as claimed in claim 1. It is asserted that the claimed expansion agent is disclosed at column 3, lines 36-39. (*See* paragraph 11 of the Office Action dated July 24, 2009). Applicant respectfully disagrees.

This passage cited by the Examiner teaches the *in situ* formation (generation) of a foamed core material within the sandwich structure. The "expandable material" recited in line 38 of column 3 of Brambach is merely the material that expands to form the foamed core. It is not an expandable material located in the sandwich structure that reacts in a mold

[3] *See* paragraph 3 of the Office Action dated July 24, 2009.

to press the composite skin against a wall of the mold. For instance, in the presently claimed invention, the expandable material reacts in the mold to push the skin of the sandwich structure against the walls of the mold. (*See, e.g.*, page 8, lines 28-33 of the specification). Thus, the expandable material in the sandwich structure of the instant invention reacts during molding. The asserted "expandable material" in Brambach (as asserted by the Examiner) is expended prior to any possible molding of the sandwich material as the "expandable material" is needed to form the foam core of the sandwich structure. Accordingly, Applicant submits that the "expandable material" of Brambach is not, and cannot be, the same as the expandable material recited in claim 1.

It is respectfully submitted that Lunde cannot make up for the deficiencies of Brambach, namely (1) molding at least one composite sandwich material including at least one manufactured core adhered to at least one composite skin into a molded composite part in a mold with the application of heat and pressure and (2) a sandwich material that has incorporated therein at least one expansion agent that reacts during the molding step to press the composite skin against a wall of the mold. Accordingly, Applicant respectfully submits that the combination of Brambach and Lunde would not result in the process claimed in claim 1. Thus, Applicant respectfully submits that independent claim 1, and all claims dependent therefrom, are non-obvious and patentable.

Applicant also submits that there is no motivation for one of skill in the art to arrive at the process for manufacturing a molded part claimed in claim 1 based on the disclosures of Brambach and Lunde. In order to establish a *prima facie* case of obviousness, there must be some suggestion or motivation, either in the references themselves or in the knowledge generally available to one of ordinary skill in the art, to modify the reference or to combine reference teachings, and the prior art reference (or references when combined) must teach or suggest all the claim limitations. (*See, e.g.*, *Manual of Patent Examining Procedure*, Patent Publishing, LLC, Eighth Ed., Rev. 7, August 2008, §2143 citing *KSR International Co. v. Teleflex Inc.*, 550 U.S. 398, 82 USPQ2d 1385 (2007)).

It is respectfully submitted that one of ordinary skill in the art would have no motivation to arrive at a process for manufacturing a molded part that includes molding at least one composite sandwich material including at least one manufactured core and at least one composite skin adhered to the core into a molded composite part in a mold with the application of heat and pressure where the sandwich material has incorporated therein at least

one expansion agent that reacts during the molding step to press the composite skin against a wall of the mold based on the disclosure of Brambach because Brambach does not teach or suggest (1) molding at least one composite sandwich material in a mold with the application of heat and pressure to form a molded composite part where the composite sandwich material includes at least one manufactured core and at least one composite skin adhered to the core and (2) a sandwich material that has incorporated therein at least one expansion agent that reacts during the molding step to press the composite skin against a wall of the mold. As discussed above, Lunde simply cannot make up for the deficiencies of Brambach. As a result, one of ordinary skill in the art would have no motivation to arrive at the process claimed in claim 1 based on the teachings of Brambach and Lunde. It is respectfully submitted that without some teaching or suggestion, there can be no motivation, and without motivation, there can be no *prima facie* case of obviousness.

Also, as discussed above, Brambach and Lunde, alone or in combination, neither teaches nor suggests (1) molding at least one composite sandwich material into a molded composite part in a mold with the application of heat and pressure, where the composite sandwich material includes at least one manufactured core and at least one composite skin adhered to the core and (2) a sandwich material that has incorporated therein at least one expansion agent that reacts during the molding step to press the composite skin against a wall of the mold. Therefore, Applicant respectfully submits that Brambach and Lunde fail to teach all of the claim limitations set forth in claim 1. Accordingly, it is submitted that a *prima facie* case of obviousness has not been established for this additional reason.

In view of the above, it is respectfully submitted that independent claim 1 is not taught or suggested by Brambach and Lunde, and that claim 1 is therefore non-obvious and patentable. With respect to dependent claims 9 and 12, Applicant submits that because independent claim 1 is not taught or suggested by Brambach and Lunde and claims 9 and 12 are dependent upon claim 1 and contain the same elements as claim 1, dependent claims 9 and 12 are also not taught or suggested by Brambach and Lunde.

In light of the above, Applicant submits that claims 9 and 12 are not obvious over Brambach in view of Lunde and respectfully requests that this rejection be reconsidered and withdrawn.

Rejection Under 35 U.S.C. §103(a)

Claims 10 and 11 been rejected under 35 U.S.C. §103(a) as being unpatentable over U.S. Patent No. 5,186,999 to Brambach ("Brambach") in view of U.S. Patent No. 5,225,450 to Beukers ("Beukers"). With respect to claim 10, the Examiner admits that Brambach fails to teach the identity of the expansion agent. In this regard, Beukers is cited for assertedly teaching an expansion agent selected from water, azodicarbonamide, sulphonyl hydrazide, and a sodium bicarbonate/citric acid mixture. The Examiner concludes that it would have been obvious to one of skill in the art to combine the selection of expansion agents taught by Beukers in the method of Brambach because the EPO application equivalent is cited as being incorporated by reference.

Regarding the rejection of claim 11, the Examiner admits that Brambach does not teach that the expansion agent represents at least 0.5% by weight of the core. Beukers is cited for assertedly teaching that the upper limit of the acceptable range for the expansion agent is dependent upon the combination of materials. The Examiner concludes that it would have been obvious to one of skill in the art to used the claimed range of expansion agent because it is a result effective variable.

Applicant's Response

In response to this rejection, Applicant respectfully directs the Examiner's attention to claim 1 and to the arguments presented above with respect to the rejection of claims 9 and 12 under 35 U.S.C. §103(a) over Brambach and Lunde and submits that claim 1 defines a process for manufacturing a molded part that is not taught or suggested by Brambach (and Lunde). As discussed in detail above, Brambach does not teach or suggest (1) molding at least one composite sandwich material that includes at least one manufactured core and at least one composite skin adhered to the core in a mold with the application of heat and pressure to form a molded composite part and (2) a sandwich material that has incorporated therein at least one expansion agent that reacts during the molding step to press the composite skin against a wall of the mold as required by claim 1.

Applicant respectfully submits that the teachings of Beukers do not add to the Examiner's rejection so as to make claim 1 unpatentable. Even with the addition of the teachings of Beukers, Brambach still does not teach or suggest a process for manufacturing a molded part that includes molding at least one composite sandwich material that includes at least one manufactured core and at least one composite skin adhered to the core into a molded

composite part in a mold with the application of heat and pressure where the sandwich material has incorporated therein at least one expansion agent that reacts during the molding step to press the composite skin against a wall of the mold. It is respectfully submitted that Beukers adds nothing to the teachings of Beukers with respect to molding at least one composite sandwich material that includes at least one manufactured core and at least one composite skin adhered to the core into a molded composite part in a mold with the application of heat and pressure or a sandwich material that has incorporated therein at least one expansion agent that reacts during the molding step to press the composite skin against a wall of the mold. As such, it is respectfully submitted that the combination of Brambach and Beukers does not teach or suggest the process for manufacturing a molded part recited in claim 1. Because claims 10 and 11 are dependent upon claim 1, which, as discussed in detail above, is not taught or suggested by Brambach and Beukers, Applicant submits that claims 10 and 11 are also not taught or suggested by Brambach and Beukers.

In view of the above, Applicant submits that claims 10 and 11 are not obvious over Brambach in view of Beukers and respectfully requests reconsideration and withdrawal of this rejection.

Rejections under 35 U.S.C. §103(a)

(1) Claim 11 has been rejected under 35 U.S.C. §103(a) as being unpatentable over U.S. Patent No. 5,174,934 to Saatchi, *et al.* ("Saatchi"). The Examiner asserts that Saatchi teaches controlling the final density of the product by adjusting the amount of expanding agents to add. The Examiner admits that Saatchi does not provide ranges for the expanding agents. It is asserted, however, that Saatchi provides examples in which the expansion agents total 0.4% of the weight of the admixture. The Examiner concludes that it would have been obvious to one of skill in the art to use the claimed range of agent because the amount of expansion agent is a result effective variable.

(2) Claim 12 has been rejected under 35 U.S.C. §103(a) as being unpatentable over U.S. Patent No. 5,174,934 to Saatchi, *et al.* ("Saatchi") as evidenced by U.S. Patent No. 6,692,681 to Lunde ("Lunde"). The Examiner asserts that Saatchi teaches controlling the thickness of the composite sandwich by adding spacers to a compaction step. It is asserted that the thickness of the composite sandwich is a result effective variable. The Examiner concludes that it would have been obvious to one of skill in the art to use the claimed range

of agent because it involves on routine skill in the art. Additionally, Lunde is cited for assertedly teaching that the thickness of the skin is less than 10% of the thickness of the composite sandwich. The Examiner concludes that it would have been obvious to one of skill in the art to use the dimensions taught by Lunde in the method of Brambach for the benefit of controlling the reinforcement or rigidity of the product by adjusting the skin to the core size ratio.

Applicant's Response

In response to this rejection, Applicant respectfully directs the Examiner's attention to the amendments made to claim 1 and to the arguments presented above with respect to the rejection of claims 1-3 and 6-8 under 35 U.S.C. §102(b) over Saatchi and submits that claim 1, as amended, defines a process for manufacturing a molded part that is not taught or suggested by Saatchi.

Saatchi teaches placing a powder-like admixture that includes a blowing agent into a cavity of a mold, applying pressure to the admixture to cause compaction thereof, and then providing sufficient heat and pressure to melt the thermoplastic and decompose the blowing agent. (*See, e.g.*, column 2, line 55 to column 3, line 4). In addition, an activator to promote the production of a gas may be included in the admixture. (*See, e.g.*, column 3, lines 46-47 and column 5, lines 48-49). Optional skins can be placed adjacent to at least one interior mold surface prior to the application of pressure. (*See, e.g.*, column 3, lines 10-12 and column 6, lines 52-54). The skin(s) may be an impregnated or non-impregnated mat, braid, unidirectional, interlaced, or woven fabric. (*See, e.g.*, column 3, lines 12-14 and column 6, lines 54-57).

Applicant respectfully submits that there is no teaching or suggestion within Saatchi of a composite sandwich material that includes at least one manufactured core adhered to at least one composite skin as claimed in claim 1. In particular, it is submitted that Saatchi does not teach or suggest a process for forming a molded composite article that includes (1) providing at least one composite sandwich material including at least one manufactured core adhered to at least one composite skin and (2) molding the composite sandwich material into a molded composite part in a mold with the application of heat and pressure as required by claim 1. Saatchi specifically teaches placing an admixture that includes a high temperature thermoplastic and a blowing agent and optionally, one or more skin, into a mold to form a composite structure within the mold. (*See, e.g.*, the Abstract). There is simply no teaching or

suggestion anywhere within Saatchi of providing a composite sandwich material that includes at least one manufactured core adhered to at least on composite skin. In Saatchi, the composite structure is formed *in situ*. (*See, e.g.*, column 2, lines 50-54).

In addition, it is respectfully submitted that Saatchi does not teach or suggest an expansion agent that reacts during the molding step to press the composite skin against a wall of the mold as claimed in claim 1. Saatchi discloses the optional use of an "activator" to promote the production of a gas. (*See, e.g.*, column 3, lines 46-47). However, Saatchi is silent with respect to any teaching or suggestion of the presence of an expansion agent that reacts during molding to push the composite skin against the wall of the mold. Applicant respectfully submits that the mere disclosure of an "activator" in the admixture of Saatchi does not teach or even suggest that this "activator" will act to push the composite skin against the wall of the mold as is required in claim 1.

It is respectfully submitted that Lunde cannot make up for the deficiencies of Saatchi, namely (1) providing at least one composite sandwich material including at least one manufactured core adhered to at least one composite skin and (2) molding the composite sandwich material into a molded composite part in a mold with the application of heat and pressure. Accordingly, Applicant respectfully submits that the combination of Saatchi and Lunde would not result in the process claimed in claim 1. Thus, Applicant respectfully submits that independent claim 1, and all claims dependent therefrom, are non-obvious and patentable.

Applicant also submits that there is no motivation for one of skill in the art to arrive at the process for manufacturing a molded part claimed in claim 1 based on the disclosure of Saatchi. In order to establish a *prima facie* case of obviousness, there must be some suggestion or motivation, either in the references themselves or in the knowledge generally available to one of ordinary skill in the art, to modify the reference or to combine reference teachings, and the prior art reference (or references when combined) must teach or suggest all the claim limitations. (*See, e.g.*, *Manual of Patent Examining Procedure*, Patent Publishing, LLC, Eighth Ed., Rev. 7, August 2008, §2143 citing *KSR International Co. v. Teleflex Inc.*, 550 U.S. 398, 82 USPQ2d 1385 (2007)).

It is respectfully submitted that one of ordinary skill in the art would have no motivation to arrive at a process for manufacturing a molded part that includes molding at least one composite sandwich material that includes at least one manufactured core and at

least one composite skin adhered to the core into a molded composite part in a mold with the application of heat and pressure where the sandwich material has incorporated therein at least one expansion agent that reacts during the molding step to press the composite skin against a wall of the mold based on the disclosures of Saatchi because Saatchi does not teach or suggest (1) providing at least one composite sandwich material including at least one manufactured core adhered to at least one composite skin or (2) a sandwich material that includes an expansion agent that reacts during the molding step to press the composite skin against a wall of the mold as required by claim 1. Lunde simply cannot make up for the deficiencies of Saatchi. As a result, one of ordinary skill in the art would have no motivation to arrive at the process claimed in claim 1 based on the teachings of Saatchi or Saatchi and Lunde. It is respectfully submitted that without some teaching or suggestion, there can be no motivation, and without motivation, there can be no *prima facie* case of obviousness.

Also, as discussed above, Saatchi, with or without Lunde, neither teaches nor suggests (1) providing at least one composite sandwich material including at least one manufactured core adhered to at least one composite skin or (2) a sandwich material that includes an expansion agent that reacts during the molding step to press the composite skin against a wall of the mold. Therefore, Applicant respectfully submits that Saatchi fails to teach all of the claim limitations set forth in claim 1. Accordingly, it is submitted that a *prima facie* case of obviousness has not been established for this additional reason.

In view of the above, it is respectfully submitted that independent claim 1 is not taught or suggested by Saatchi, or Saatchi as evidenced by Lunde, and that claim 1 is therefore non-obvious and patentable. With respect to dependent claims 11 and 12, Applicant submits that because independent claim 1 is not taught or suggested by Saatchi (with or without Lunde) and claims 11 and 12 are dependent upon claim 1 and contains the same elements as claim 1, dependent claims 11 and 12 are also not taught or suggested by Saatchi or Saatchi as evidenced by Lunde.

In light of the above, Applicant submits that claims 11 and 12 are not obvious over Saatchi or Saatchi as evidenced by Lunde and respectfully requests reconsideration and withdrawal of this rejection.

Conclusion

In light of the above, Applicant believes that this application is now in condition for allowance and therefore requests favorable consideration.

If any points remain in issue which the Examiner feels may be best resolved through a personal or telephone interview, the Examiner is kindly requested to contact the undersigned at the telephone number listed below.

If necessary, the Commissioner is hereby authorized to charge payment or credit any overpayment to Deposit Account No. 50-0568 for any additional fees required under 37 C.F.R. § 1.16 or under 37 C.F.R. § 1.17; particularly, extension of time fees.

Respectfully submitted,

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/Kathryn W. Grant/
Kathryn W. Grant, Reg. #33238

Owens Corning
Patent Department, Bldg. 21-0
2790 Columbus Road
Granville, Ohio 43023
(740) 321-7213